Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C. 20554

In the Matter of:	)	
	)	
Comments About The Status of State Actions	)	FCC Docket No. 94-102
To Achieve Effective Deployment of E-911	)	
Capabilities For Multiline Telephone Systems	)	

Comments of RedSky Technologies, Inc.

These comments are submitted by RedSky Technologies, Inc. (RedSky)[1] in response to the Commission's December 12, 2004 request (DA 04-3874).

As acknowledged in the Commission's own request for comments, maintaining current Automatic Location Identification (ALI) information is necessary for effective emergency response, not only to quickly respond to the caller, but also to protect emergency responders by providing the most accurate location information during chaotic situations. RedSky's E-911 Manager allows institutions to easily create, manage and maintain a database that systematically provides station-specific location information about a 911 caller's whereabouts within a single occupant or multi-tenant building, office complex or campus. It is the most comprehensive and most automated solution for multi-line telephone systems available today. The software builds on the advanced capabilities of multi-line telecommunications systems to streamline the management process and reduce system administration requirements for ongoing ALI updates.

RedSky's E-911 Manager software interfaces with multi-line business communications systems (MLTS) offered by most of the nation's largest PBX equipment providers. Our core customer base currently utilizes conventional Centrex or PBX-served MLTS systems, but RedSky is also keeping pace with emerging and Internet-based E-911 challenges. In fact, our industry-leading position in the development and sale of emergency onsite notification systems and E-911 solutions that interoperate with Internet protocol (IP) telephony software was recently cited by Avaya, a leading global provider of business communications software and a pioneer in IP-based business telephony systems.

Nearly 30 years after enhanced 911 service first emerged and a decade after the Commission initiated this inquiry, there has been some progress made with 12 states now operating under E-911 legislation, versus 9 states a year ago.

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[1] RedSky is a privately held, Chicago-based telecommunications software provider established in 1995 whose flagship product, E-911 Manager, currently enables more than 150 leading businesses, schools and government agencies to automatically manage E-911 for their MLTS facilities. As a result, hundreds of thousands of employees are appreciably safer at work with a solid E-911 system in place. Although many of our customers have adopted E-911 to be compliant with legislation, many are currently implementing E-911 across the U.S. in anticipation of a national regulation or to provide a safer environment for employees and visitors. RedSky previously provided comments and replies on E-911 issues to the Commission in connection with NPRM 02-326.

However, this critical issue requires more accelerated action. By some estimates there are more than 70 million Americans that work or visit multi-tenant office structures, retail complexes, manufacturing centers, warehouses, health care complexes, educational institutions, etc., where the same level of E-911 protection with full identifier and PSAP information exchange capability is not enjoyed.

Two recent high-rise office building fires in downtown Chicago showed how essential E-911 information can be during a crisis situation. One ended tragically with multiple lives lost because people were calling from their cellular phones and could not be located. Although no lives were lost in the second incident, it required over 300 fire-fighters and more than 4 hours to fully evacuate the multi-floor building. In both instances the need for a seamless information-exchange interface between those summoning help, PSAP personnel and on-location emergency responders was validated not only to provide effective emergency response but to protect first responders and maximize the beneficial use of public resources.

While state legislation, where it has been enacted, is doing an adequate job of creating a legal basis for businesses to take action on addressing E-911 capabilities, what is missing is consistency, enforcement actions and penalties.

A joint effort is required across the board -- from state and federal regulators, business owners, building owners and operators, to local authorities (including State Fire Marshals and local fire inspectors) – to insure that E-911 is implemented in multi-floor and campus workplace facilities, and that education occurs. In fact, a process for insuring that these standards are met should be an integral part of standard periodic fire and workplace safety inspection routines. Instead, the most effective enforcement mechanism to date appears to be the potential for liability, not a forthright commitment to safety by responsible public authorities, business leaders and building owners.

Status of State Action, Actions Required and Time Frames

Regarding the status of state action for Enhanced 911 requirements for MLTSs, four issues for consideration are readily apparent. (Specifics are cited below and additional details can be found in the associated matrix, Appendix A.)

1) There is a need for consistency and standardization among the states.
2) Employers should be required to educate employees about how to dial 911. Public officials should be required to educate MLTS operators on the benefits of E-911 for effective emergency response.
3) Compliance should be required for new and existing systems.
4) Enforcement and meaningful penalties should be incorporated for non-compliance.

1) **Consistency and standardization across the states will eliminate confusion surrounding new legislation.**

The matrix in appendix A offers a comparison of requirements as they relate to the model legislation proposed by NENA. There is clearly a lack of consistency among the states and with the model legislation. 10 of 12 states explicitly outline requirements for shared residential facilities. 7 of 12 states include business facilities as part of the requirements; however most do not cite it explicitly. Most state laws fail to address government or public facilities outright and two bills specifically exempt state and local government agencies and public schools from compliance. With government facilities being prime targets for terrorist activities and schools continually struggling with violence on campus, the laws should explicitly INCLUDE them as being required to implement E-911, not make them immune from the regulation. Further, state and local government should lead by example and incorporate the most effective emergency response tactics available.

Many of the statutes are either unclear or incomplete in their definition and therefore do not provide direct guidance for MLTS users. This ultimately leaves the law open to interpretation with a direct result of confusion and no action. [See "Points of Note" in Appendix A]

2) **Education is a key component to effective E-911 deployment. Employers should be required to educate their employees about how to dial 911. Public officials should be required to educate MLTS operators on the benefits of E-911 for effective emergency response.**

Colorado and Minnesota E-911 statutes are currently the only two states that require employers to educate workers how to dial 911. E-911 is ineffective unless the general public is aware of how to dial 911 from their desk phone and the relative benefits of dialing 911 from a desk phone instead of a cellular phone when in a business facility. The private switch can be configured to reach the 911 call center if the user dials 9-911 or simply 911. Cellular phones do not provide the detailed floor and cubicle location information required in an emergency, therefore dialing from the desk phone is preferred.

The Colorado statute allows businesses to choose either ongoing employee training and education on how to dial 911 OR implementing E-911 to automatically convey location information. The challenge then is to make sure that employees (and visitors) are trained and hope they understand, or implement a systematic, fail-safe solution that automatically provides the details required for prompt response. Systematically providing location information through E-911 is the most effective means in protecting American workers and is very attainable given the technology available today.

To improve compliance in states with E-911 legislation, and even in states without a mandate, it is imperative that MLTS operators be educated and encouraged by 911 public safety officials to implement E-911 for their facilities. MLTS operators are generally unaware of or confused by the

state requirements and the relative importance to public safety officials. As a result many are unknowingly not compliant or actively choose to skirt the issue due to lack of enforcement or encouragement by local officials.

To begin the education process, state and local fire marshals should incorporate E-911 into an annual survey or emergency preparedness checklist that is reviewed with existing and new businesses. Grass roots support from the local authorities would go a long way toward encouraging businesses to comply with the legislation or to implement E-911 as a way to provide a safer working environment.

3) State legislative requirements should include new <u>and</u> existing systems in order to close a major loop hole and provide clear definition of which systems are affected.

<u>None</u> of the regulations passed in 2004 address existing systems, only new systems. Additionally, the regulations do not define what constitutes a "new system" so many businesses are considering themselves exempt. MLTSs can be upgraded for years and potentially not be considered a new system, therefore remaining exempt from these regulations and unsafe as a result. Many MLTSs were upgraded in preparation for Y2K, therefore implementing E-911 on these systems is not cost prohibitive. In fact, if these existing systems are not included in the requirements, they may never become compliant.

4) Enforcement and penalties would push compliance.

Two of twelve states have penalties associated with non-compliance however there are no formal enforcement measures being taken in any state. Without meaningful penalties and ongoing enforcement from state and local public officials, the laws that are enacted are not taken seriously or worse, ignored completely.

Consistent, well-defined regulations with penalties and ongoing, consistent enforcement are needed to protect American workers. As it stands today, most businesses are unsure of their requirements and ultimately are not moved to action. Enterprises with facilities in multiple states are even more unsure and at greater risk of liability if they provide a higher level of safety in one facility than another.

If the Commission elects to not adopt nationwide regulations in the near future, at the very least the Commission should urge the Occupational Safety and Health Administration (OSHA) to incorporate E-911 into their Emergency Action Plan checklist for businesses as a workplace safety issue. Working with OSHA or other appropriate federal agencies would alleviate the Commission's imposition on businesses and appropriately designate E-911 as a basic workplace safety issue and a core component of emergency response capabilities.

Carrier Services Provided under State Tariff

RedSky's clients have facilities throughout the United States that require interface to multiple carriers for ALI updates. This affords us a wide visibility as to the types of services that carriers provide.

Our view is that Carriers themselves and the Carrier Services they provide are not an impediment to the widespread implementation of E-911 by MLTS owners. The Carrier Services offered today are adequate for an MLTS owner to implement E-911 and identify a 911 caller down to the building, floor and room.

All incumbent local carriers provide the basic necessities that are required to support E-911 for MLTS, namely the provisioning of ISDN-PRI or CAMA for call processing, DID numbers, the establishment of an ALI database account so the MLTS owner can establish and maintain ALI records with the regional ALI database, and monthly billing for ongoing ALI maintenance. This enables an MLTS owner to adopt E-911.

Robust middleware software solutions, like RedSky's E-911 Manager, already exist to completely automate the ALI updating process with each carrier. In fact, the middleware solutions available today are sophisticated enough to support multiple types of MLTS across hundreds of locations, thereby centralizing management control and streamlining administrative processes across a multi-state or multi-location enterprise.

Because software solutions already exist to cost-effectively manage E-911 it is not necessary to require Carriers to develop interfaces to the myriad of MLTS systems on the market.

Regarding the availability of E911/MLTS services offered under tariff in states with legislation and in states without, most carriers generally follow the same process and have similar pricing structures for an MLTS owner to access the carrier's ALI database for E-911 purposes. All carriers essentially follow the same steps. There is typically a one-time account set-up fee to establish the DID ranges and location records in the ALI database. There is a monthly fee to maintain and update the records stored in the Carriers ALI database.

RedSky is not aware of any standard product offering from carriers that provide ALI update services to MLTS owners beyond the basic Internet-based, dial-up software that allows an MLTS owner to access the ALI database manually or through file transfer methods. Some carriers may offer Managed Services for large customers in order to facilitate timely ALI updates.

Though E-911 service is available from Carriers throughout the country, there still are issues that impede progress for an MLTS owner to implement E-911 for their multi-state enterprise. Those issues, identified below, present ripe opportunities for further action by the Commission, particularly as we enter an era characterized by an increasing variety of companies who might be considered to be Carriers using multiple technologies.

RedSky's Recommendations for FCC action for Carrier Services

Based on specific points addressed below, following are recommendations to improve the process with Carriers to remove barriers and facilitate cost-effective and timely E-911 implementation.

1) Prohibit the use of asynchronous security keys or other security log-in procedures by carriers that require human intervention in the ALI record export process. Identify and support a uniform, machine-to-machine security handshake between the MLTS and the ALI database.
2) Regulate the carriers to adopt a uniform XML interface to their ALI databases.
3) Provide a "single point of entry" for all ALI records nationwide. This allows MLTS operators that span multiple states to enter ALI records into a single portal rather than support multiple dial-up accounts in each carrier's region.
4) Regulate carriers to adhere to a 30-day cycle time to establish an account to populate the ALI database. The Cycle Time to establish a PS-ALI account with the carrier to access the ALI database varies widely and can be a significant impediment to the timely implementation of E-911.

RedSky now addresses in greater detail Points 2 through 8, as specified on Pages 3 and 4 in the Commission's December 12, 2004 request for comments (DA 04-3874):

2) Provide links to Carriers' published tariffs.

The standard tariffs for PS-ALI service offered by the carriers typically involve a one-time set up fee and ongoing monthly charges based on the number of DIDs being updated. However tariffs vary by state and by carrier. The MLTS owner thus must sign individual contracts with each carrier for access to the ALI database. This can be quite cumbersome and expensive for enterprises in multiple states. Further, if an enterprise subscribes to a competitive local service provider, standards are not in place to enable access to the ALI database through the competitive provider, but only through the incumbent carrier. This is cumbersome and anti-competitive when the alternative local service provider can't provide or re-sell this critical service to their customers. [See Appendix B for examples of PS-ALI tariff pricing structures.]

3) Identify the salient technical features of each service offered under tariff.

All carriers have the capability to support MLTS ANI transmissions using either ISDN-PRI or CAMA trunks, however some have not yet upgraded their Central Offices for E-911 via ISDN-PRI even though they offer this broadband service for basic data transfer. ISDN-PRI is by far the most prevalent offering and only in a small percentage of territories is the MLTS owner required to use CAMA trunks. Further all Carriers including, Qwest, SBC, BellSouth and Verizon support MLTS ALI record export to their databases through dial-up gateways. This is not an issue for the widespread adoption of E-911.

The 911 system in and of itself requires that each caller be associated to a DID number for call-back purposes and to associate to an ALI record in the database. Typically DIDs are ordered

from the carrier for approximately ten cents per number, which is charged on a monthly basis. Companies can purchase one DID to represent multiple non-DIDs for 911 calls. This DID requirement is not an issue for the widespread adoption of E-911.

4) Identify salient operational characteristics of the service.

(See response 5 for ALI database interface options and issues.)

5) Identify the Automatic Location Identification (ALI) database interface options and costs for MLTS operators , procedural impacts on MLTS operators , and the ALI database interface standards or specification supported salient operational characteristics of the service.

ALI database interface options, standards and specifications

All carriers use dial-up modem interfaces that allow the MLTS owner to submit ALI records into the ALI database. This is 30-year-old technology but it works given the limited number of data records that each MLTS uploads daily and non-real time requirements of the Carrier''s ALI database. (The Carrier ALI database typically is only "cycled" and updated once every 24 hours.)

It is becoming increasingly difficult to install dial-up modems inside corporate networks due to security concerns. Although more modern XML-based interface specifications have been proposed, they have not been adopted for use by the carriers.

For example, one issue that is a severe impediment to MLTS automation is the adoption of security log-in procedures now being adopted by SBC. The SBC method uses dynamic key cards, such as RSA's ID cards, to allow people to log into corporate email or servers. A number on the key changes every minute, and the user must enter this number within the minute when logging in. The server is synchronized and checks the number. In short, the user must be in possession of the card with the changing number and the user must manually log in. SBC is requiring that the MLTS owner log on and with a dynamic ID card and then submit ALI changes. This means that the E-911 process can not be automated. A human must actively be in the loop and engaged in the transaction.

ALI records maintenance does not warrant the strict security that RSA IDs provide. The log-in requirement delays ALI updates and makes the process error-prone, labor intensive and inefficient. Additionally, training administrators and maintaining multiple security keys is burdensome on an organization and serves as another barrier to speedy E-911 deployment. In light of the impending requirement for more real-time updates for IP phones, this cumbersome process becomes inconceivable.

Other means, such as X.509 digital certificates, HTTPS, and updated passwords insure the same level of security, yet allow a computer to contact the carrier to receive the updated data. These methods offer log-in options that minimize direct human intervention.

Requiring a human to log-in every day and upload data records is an unwarranted level of security, a waste of manpower and presents a significant impediment to the widespread adoption of MLTS E-911.

Costs and procedural impacts on MLTS operators

The Cost for the PS-ALI service includes a one-time set-up charge and ongoing maintenance. These costs vary by state and by carrier and are governed by the state tariffs. [See Appendix B for examples of pricing.]

If an MLTS operator wants to implement E-911 they must sign a contract with the incumbent carrier to open an account. This enables them to establish access to the ALI database, update and store ALI records. If an MLTS operator has operations in multiple states (this is very common, particularly among Fortune 500 and Fortune 1000 companies), they must sign individual contracts and open individual accounts with each carrier in every territory in which they have operations.

The cycle time to open an account with the carrier varies within a range of 60 to 120 days. The MLTS operator is essentially at the mercy of the carrier in terms of their cycle time and contract requirements to establish an account.

6) Indicate whether PSAPs generally have been able to receive and utilize the ALI and call back information provided and, if not, why not.

It is our experience that ALI data is sent to the carrier in the format required by the carrier, and that the PSAPs have been able to receive and utilize the information for callback and location identification. In fact, it was demonstrated in a recent high-rise fire in downtown Chicago that callers on the MLTS were automatically identified by the 911 call center, versus their counterparts calling from cellular phones who were trapped in an unknown location.

7) Estimate the degree to which the offerings satisfy or cover the MLTS market

The adoption of Asynchronous certification security keys (see response to Point 5 on page 7) will effectively destroy the ability to automate the ALI update process by adding cost and introducing human intervention into the process. This will inhibit enterprises from implementing E-911 enterprise wide and prevents any notion of real-time updates. With the exception of this issue, it is our view that the carriers should be required to provide the basic tools and infrastructure to enable any MLTS operator to implement E-911 cost effectively.

8) Identify real or perceived technical, economic, operational and other impediments to full E911 coverage for MLTSs.

a) The adoption of Dynamic key cards, such as RSA's ID cards (see response to Point 5 on page 7) will effectively destroy the ability to automate the ALI update process by adding cost and introducing human intervention into the process. This will inhibit enterprises from implementing E-911 enterprise-wide and will severely impede more frequent updates.

b) For enterprises that have operations that span multiple states, a single point of entry for all ALI records would streamline the process, reduce costs, and enable better, more consistent, timely and efficient management of ALI records.

c) The adoption by the carriers of a uniform XML data transfer specification for ALI records would facilitate adoption of E-911 and ALI data transfers from corporate networks because they would be consistent with encrypted data transfer methods commonly in use. Dial-up modem data transfer is becoming increasingly difficult to install within corporate networks

Prompt Action; Clear, Consistent Leadership and Standards Needed

The general position of RedSky Technologies as regards to this proposed rulemaking is that the Commission should move expeditiously to take action, provide essential leadership, and establish a consistent national E-911 standard. Ideally that standard should align with the model E-911 legislation championed by NENA, the National Emergency Number Association.

In the face of the urgent public safety and security concerns that E-911 addresses, disparate state laws and a veritable barrage of new communications technologies, RedSky believes that the most important role the Commission can play is to:

a) Strongly urge states to enact clearly defined and meaningful legislation for new and existing multi-line telephone systems in facilities above 7,000 square feet or that reside on multiple floors.

b) Promote creation and implementation of meaningful enforcement mechanisms and provide leadership in ensuring that the "E" in E-911 is not threatened by a patchwork of confusing state regulations and uneven or nonexistent enforcement.

c) Provide a coherent, comprehensive solution to educate the public as to the capabilities of E-911 on the multi-line telephone system and its effective use. User training is an essential component of successful emergency response in a business setting. When seconds count the public and emergency responders deserve the best performance that technology can offer and the knowledge and ability to act in the most effective way.

d) Establish a consistent framework for accountability by incumbent LECs to adopt gateway interfaces that support automated ALI management software used to update location information from multi-line telephone systems;

e) Require that all MLTS OEMs support ANI output and require that fields transmitted to PSAPs allow the end user customer to identify the building, room and floor of every extension, with a published interface to export this data automatically to ALI management software.

RedSky Technologies' Contact Information. These comments are respectfully submitted on February 28, 2005 by RedSky's Anthony Maier, president and chief executive officer. More information on RedSky is available at www.redskytech.com or by calling 1-877-REDSKY1.

Appendix A

Comparison of Existing State E-911 Legislation Requirements To NENA Model

State	Entities Affected	Existing or New Systems	Dialing Instructions, User Education	MLTS Operator Education	Fines	Enforce-ment	Points of Note
Arkansas	**Unclear**	**Not Specified**	**No**	**None**	**None**	**None**	**Legislation very unclear and non-specific**
Colorado	**Shared Residential; Business; Hotel-Motel; State Agencies; Public Schools**	**Not Specified**	**Yes**	**None**	**None**	**None**	**Mandate for 911 Dialing Instruction Only**
Connecticut	**No Entities Specified**	**Not Specified**	**No**	**None**	**None**	**None**	**Legislation Only Addresses Basic 911 Dialing**
Florida	**Shared Residential; Business; Hotel-Motel; State Agencies; Public Schools**	**New Systems Only**	**None**	**None**	**None**	**None**	**No Definition of "New System"**
Illinois	**Shared Residential; Business; State Agencies; Public Schools**	**Existing and New**	**None**	**None**	**Minor**	**None**	**No Enforcement**
Kentucky	**Shared Residential Only**	**Existing and New**	**None**	**None**	**Yes**	**None**	**Hotels/Motels, State Agencies and Public Schools Specifically Exempted**
Louisiana	**Shared Residential; Business; Hotel/Motel; State Agencies; Public Schools**	**New Systems Only**	**None**	**None**	**None**	**None**	**No Definition of "New System"**
Minnesota	**Shared Residential; Business; Hotel/Motel; State Agencies; Public Schools**	**New Systems Only**	**None**	**Not Specified, But Local Agencies Are Active**	**None**	**None**	**No Definition of "New System"**
Mississippi	**Shared Residential Only**	**Existing and New**	**None**	**None**	**None**	**None**	**Requirements Unclear for Business, Government and Hotel/Motel**
Texas	**Shared Residential Only**	**Existing and New**	**None**	**None**	**None**	**None**	**No Requirements Beyond Shared Residential**
-Tarrant County, TX Amendment	**Business, Hotel/Motel**	**New Systems Only**	**None**	**None**	**None**	**None**	**State Agencies, Public Schools Exempt and Only New Systems**
Vermont	**Shared Residential; Business, Hotel/Motel**	**Existing and New**	**None**	**Not Specified, But Local Agencies Are Active**	**None**	**None**	**Nothing Specified for State Agencies, Public Schools**
Washington	**Shared Residential; Business; State Agencies; Public Schools**	**Existing and New**	**None**	**None**	**None**	**None**	**Nothing Specified for Hotel/Motel**

SOURCE: RedSky data, public documents and media reports

Appendix B

Examples of Private Switch ALI Pricing

SBC Price Breakdown for Illinois, Indiana, Michigan, Ohio & Wisconsin

Number of Stations	One-Time Charge	Monthly Rate
1-300	4270.00	62.40
301-500	4770.00	89.00
501-750	5270.00	112.50
751-1000	5770.00	130.00
1001-1500	6270.00	150.00
1501-2000	6770.00	165.00

BellSouth's PinPoint Service

Summary: A tariff rate is consistent across 9 States, except North Carolina where the pricing is a bit less. The customer does not sign a contract, but per the tariff, if they discontinue their service before 5 years is up, they pay a $2500 penalty. The disconnection may occur if the customer decides to port their service to another facilities based carrier, but apparently Bell South has never had to issue this penalty. The customer would work through their Bell South rep, or their reseller to issue the order for the service. Bell South issues the order with Intrado. Once the customer has the database ready, Bell South maintains that the remainder of the process takes days to complete. If the customer requires changes to their ISDN PRI configuration, the customer must work with the Bell South team to initiate required changes.

Number of Stations	One-Time Charge	Monthly Rate
1-1000	$3600.00	$178.00
1000-2000	$4800.00	$310.00
2001-3000	$4800.00	$465.00
3001-4000	$4800.00	$620.00
4001-5000	$5900.00	$775.00
5001-6000	$5900.00	$930.00
6001-7000	$5900.00	$1085.00

Verizon

Summary: Charges for Verizon consist of a non-recurring set-up charge for the gateway account and a monthly storage charge for the number of ALI records stored in the database. The account set up charges depend on the type of trunking service the customer has i.e. Centrex, ISDN or CAMA. Currently the up-time to establish private-switch ALI service is 120 days after the contract is signed.

- **Verizon Centrex User:**
  $2,000 non-recurring set-up charge. $8.00 per 100 stations (records) monthly recurring charge.

- **Verizon ISDN PRI User:**
  $2,500 non-recurring set-up charge. $10.00 per 100 stations (records) monthly recurring charge.

- **Verizon CAMA:**
  Unknown